

OCCIDENTAL PETROLEUM CORPORATION

Please contact your area engineer with any questions concerning this procedure.

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PLUG and ABANDONMENT PROCEDURE

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API: 05-123-08627

**Step Description**

1	Well is being re-entered to P&A well to current standards due to it being offset to upcoming fracs.
2	Provide 48 hour notice to Colorado ECMC prior to rig up per request on approved Form 6 (i.e. submit Form 42, etc.)
3	Perform pre-job safety meeting and review JSA. Ensure all parties know their roles and responsibilities and can identify hazards.
4	Follow all Rockies Well Servicing guidelines.
5	Stop and complete new JSA prior to all barrier changes.
6	Attempt to leave kill string in the hole every evening/weekend. If this is not possible, discuss with foreman/engineer.
7	Locate and expose 8-5/8" casing stub.
8	Tie into and weld on 8-5/8" casing stub above GL.
9	Install 8-5/8" 3K Q92 well head with ball valves on both outlets.
10	Check and record surface casing pressure.
11	MIRU rig/ equipment/tanks/pumps.
12	Perform negative test and ensure well is dead. Wait 15-30 minutes to verify (cement is at surface).
13	Pressure test BOPE, annular and 2" 1509 iron to API standards. Chart and record pressure tests. Please refer to Testing Procedures and Testing Table listed in the APPENDIX tab. All tests are performed on stump. Note: ensure BOPE accumulator controls are properly placed and pressurized.
14	NU and torque BOPE to casing head. The BOP consists of the following components: 7-1/16" double gate BOP with blind rams and pipe rams (for 4.5" DP), annular bag, 2 TIW valves accessible with change overs if applicable (i.e. drill collars). Communicate with foreman on correct BOP.
15	Test TIW valves. Chart tests and document accordingly.
16	Spot in a pipe rack for 4-1/2" drill pipe.
17	MIRU power swivel and kelly cock valve.
18	PU and TIH with 8-5/8" drag drill bit, on 4-1/2" drill pipe with directional tools.
19	Drill 10 sx cement plug from surface through estimated BOC at 47'. Continue drilling out 40 sx cement plug at shoe, BOC estimated 760'. IF WE BEGIN TO SEE INDICATION OF NEW FORMATION BEING DRILLED, STOP AND DISCUSS W/ FOREMAN/ENGINEER. Continue drillout and wash down to 6550'. Contact engineering if depth not reached.
20	Circulate with biocide treated fresh water to clean the hole. Pump until returns are clean.
21	Run gyro or use directional survey.
22	TOOH, LD drill bit, and directional tools. SB all 4-1/2" drill pipe.
23	PU and TIH with 8-5/8" bit and scraper. Clean surface casing from surface to 692'. Run scraper over 340' to 360' 2-3 times to ensure casing is clean for CIBP. TOOH, LD bit and scraper, SB all DP.
24	Open ended 4-1/2" DP to 6550'. Establish circulation to surface with biocide treated fresh water and pump at least three hole-volumes to clean up wellbore. Start at a low rate, then once returns are clean, slowly increase rate to 4 bpm.
25	MIRU cementers. Pump Nio Plug: Pump 285 sx (77.2 bbl or 434 cf) of the Niobrara Cement blend: Class G with 0.4% B547 Gas Block (Latex) and 0.4% D255 FLA (Fluid Loss) and 35% D066 Silica Flour and 0.2% D800 (Retardant) and 0.3% D065 (Dispersant). Volume based on 500' in 7.875" bit size open hole with 100% excess factor. Cement will be from 6550'-6050'. Collect wet and dry samples of cement to be left on rig. RDMO Cementers. Notify engineering if circulation is ever lost during job.
26	Pull out of cement. TOOH to 4615'. Forward circulate tbgs clean for a minimum of 2 bottoms up. SB 4-1/2" dp, LD remaining. WOC.
27	Open ended 4-1/2" DP to 4615'. Establish circulation to surface with biocide treated fresh water and pump at least three hole-volumes to clean up wellbore. Start at a low rate, then once returns are clean, slowly increase rate to 4 bpm.

28	MIRU cementers. Pump Sussex Plug: Pump 285 sx (60.5 bbl or 340 cf) of the Sussex AGM: Class G with 0.4% B547 Gas Block (Latex) and 2% D053 Expansion (Gyp) and 0.25% D255 FLA (Fluid Loss) 0.3% D065 (Dispersant). Volume based on 500' in 7.875" bit size open hole with 100% excess factor. Cement will be from 4575'-4075'. Collect wet and dry samples of cement to be left on rig. RDMO Cementers. Notify engineering if circulation is ever lost during job.
29	Pull out of cement. TOOH to 2600'. Forward circulate tbg clean. SB 4-1/2" dp, LD remaining. WOC.
30	Open ended 4-1/2" DP to 2600'. Establish circulation to surface with biocide treated fresh water and pump at least three hole-volumes to clean up wellbore. Start at a low rate, then once returns are clean, slowly increase rate to 4 bpm.
31	MIRU cementers. Pump Upper Pierre Plug: Pump 285 sx (61.5 bbl or 345 cf) of the Lower AGM blend: Class G with 0.4% B547 Gas Block (Latex) and 1% S001 CC (Calcium Chloride) and 4% D053 Expansion (Gyp). Volume based on 500' in 7.875" bit size open hole with 100% excess factor. Cement will be from 2500'-2000'. Collect wet and dry samples of cement to be left on rig. RDMO Cementers. Notify engineering if circulation is ever lost during job.
32	Pull out of cement. TOOH to 1800'. Forward circulate tbg clean. SB 4-1/2" dp, LD remaining. WOC.
33	Open ended 4-1/2" DP to 1800'. Establish circulation to surface with biocide treated fresh water and pump at least three hole-volumes to clean up wellbore. Start at a low rate, then once returns are clean, slowly increase rate to 4 bpm.
34	COA: Prior to pumping cement into the Upper Pierre, verify all fluid migration has been eliminated. Contact engineering if pressure remains.
35	MIRU cementers. Pump Upper Pierre Plug: Pump 285 sx (61.5 bbl or 345 cf) of the Upper AGM blend: Class G with 0.4% B547 Gas Block (Latex) and 1.5% S001 CC (Calcium Chloride) and 4% D053 Expansion (Gyp). Volume based on 500' in 7.875" bit size open hole with 100% excess factor. Cement will be from 1750'-1250'. Collect wet and dry samples of cement to be left on rig. RDMO Cementers. Notify engineering if circulation is ever lost during job.
36	Pull out of cement. TOOH to 880'. Forward circulate tbg clean. SB 4-1/2" dp, LD remaining. WOC.
37	COA: WOC 8 hours. If there is evidence of pressure or fluid migration, contact Engineering as there will need to be additional remediation attempts before the SC shoe plug.
38	Open ended 4-1/2" DP to 880'. Establish circulation to surface with biocide treated fresh water and pump at least three hole-volumes to clean up wellbore. Start at a low rate, then once returns are clean, slowly increase rate to 4 bpm.
39	Load hole with 50 bbls of heated surfactant to clean surface casing walls, wellhead, and surface valves/lines. Let soak for at least 2 hours. Circulate out heated surfactant with fresh water.
40	MIRU cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Surface Casing Shoe Plug: Pump 165 sx (35.6 bbl or 200 cf) of the Surface AGM blend: Class G with 0.4% B547 Gas Block (Latex) and 2% S001 CC (Calcium Chloride) and 4% D053 Expansion (Gyp). Volume is based on 188' in 7.875" bit size open hole with 100% excess factor. 202' in the 8-5/8", 24# surface casing with no excess. The plug is designed to cover 880'-490'. Collect wet and dry samples of cement to be left on rig. RDMO Cementers. Notify engineering if circulation is ever lost during job.
41	Pull out of cement. TOOH to 350'. Reverse circulate tbg clean with fresh water. WOC.
42	COA: If cement was not circulated to surface, then WOC 4 hours. Tag TOC. TOC must be 276' or shallower. If tag is too deep or there is evidence of pressure or fluid migration, contact Engineering.
43	MIRU WL. RIH and tag cement with gauge ring to verify appropriate coverage above the surface casing shoe. Notify engineering if tag is low. Pressure test TOC to 500psi for 15 minutes. Record and notify engineering and foreman of results.
44	MIRU WL. PU and RIH with (8-5/8", 24#) CIBP and set at 350'. POOH. RDMO WL.
45	Open ended 4-1/2" DP to 350'. Either swab well down or use rig air to remove water from well. (Note: Do not exceed 175 psi if using rig air). If either methods cannot be performed, contact engineering to discuss excess cement volume for top out plug.
46	DO NOT PUMP WATER AHEAD OF CEMENT. MIRU Cementers. Pump Surface Plug: Pump 105 sx (22.7 bbl or 128 cf) of the Surface AGM blend: Class G with 0.4% B547 Gas Block (Latex) and 2% S001 CC (Calcium Chloride) and 4% D053 Expansion (Gyp). Volume based on 350' inside 8-5/8", 24# surface casing with no excess. Cement will be from 350' to surface. Verify and document cement to surface. Collect wet and dry samples of cement to be left on rig.
47	Pull out of cement. TOOH, LD all but one joint of 4-1/2" dp. Circulate clean with water to ensure TOC is low enough for C&C team. TOOH and LD final joint of 4-1/2" dp. RDMO cementers. ND BOP. Install night cap. RDMO WO rig.
48	Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@oxy.com within 24 hours of completion of the job.
49	Supervisor submit paper copies of all invoices, logs, and reports to Well Services Engineering Specialist.
50	Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.

51	Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
52	Welder cut casing minimum 5' below ground level.
53	Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
54	Obtain GPS location data and provide to GPS Teams page and OXY GIS database.
55	Back fill hole with fill. Clean location, and level.
56	Submit Form 6 Subsequent Report to Colorado ECMC ensuring to provide 'As performed' WBD identifying operations completed.